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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/163,848 09/30/98 PEAIRS

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EXAMINER

TM02/0314

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ART UNIT

PAPER NUMBER

2176

DATE MAILED:

03/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/163,848

Applicant(s)

PEAIRS ET AL.

Examiner

Cong-Lac Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to communications: amendment filed on 12/27/00 to the application filed on 09/30/98.
2. Claims 1-32 are pending in the case. Claims 1, 9, 13, 19, 24, 29 are independent claims.
3. The objection of the specification as not being updated the serial number of the US Patent Application has been withdrawn in view of the update.
4. The rejections of claims 1, 11-12, 13, 30 under 35 U.S.C. 112, second paragraph, as being indefinite have been withdrawn in view of the amendment.
5. Claim 8 remains rejected under 35 U.S.C. 112, second paragraph since no correction has been made.

Drawings

6. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claim 8 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, it is not clear what the limitation is because the claim is an unfinished sentence.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102((e), f) or (g) prior art under 35 U.S.C. 103(a).

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11. Claims 1-4, 7, 9-10, 13-28 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Takano (US Pat No. 5,983,246, 11/9/99, filed 2/13/98) in view of de Souza et al. (US Pat No. 5,848,418, 12/8/98, filed 9/29/95).

Regarding independent claim 1, Takano discloses:

- analyzing the content of *unclassified documents* for classifying *using text data and image data of the document* (col 1, lines 7-14; col 6, lines 21-40; content data can be text, images or sounds or all since it is multimedia data, col 8, lines 48-55)
- generating a classification of the document based on the textual properties (col 3, lines 15-25; col 8, lines 43-67)
- storing the electronic document in a pre-existing *directory structure* based on the classification (document is registered in the decided classification item *in the classification information storage*, col 3, lines 42-50; col 1, lines 15-25)

Takano does not use disclose that said analyzing is performed on an entire electronic document.

De Souza discloses:

- analyzing textual and graphical properties of a document using text data and image data of the entire electronic document (each file includes text and graphics, col 1, lines 6-13; 24-28; *analyze all* or at least a portion of a *file*, col 2, lines 1-4, col 3, lines 65-67 to col 4, lines 10-13).
- generating a classification of the document based on the textual and graphical properties (col 1, lines 11-13; col 3, lines 65-67 to col 4, lines 1-33)

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It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated de Souza into Takano. De Souza discloses analyzing text, graphics, and audio clips data of an entire electronic file (col 6, lines 16-23) for review or some other action, which can be classification, by checking of the type property of a file (col 1, lines 1-13; col 2, lines 1-4). Takano also discloses analyzing unclassified documents in the network which may include multimedia data as text, sounds and images (col 8, lines 48-50) and the classification of documents is carried out based on the consulting of the bibliographic item of an previously unclassified document (col 6, lines 21-30). It would have been obvious that the bibliographic item, which constitutes a characteristic feature of the content of the document, should include feature of images, text and sound. The analyzing and classification, therefore, are based on the features of text and images of the document.

Regarding claims 2, 3, 7, which are dependent on claim 1, Takano and de Souza do not explicitly disclose that the *directory structure* comprises a hierarchy of documents mirroring in a similar fashion of the pre-existing memory. Instead Takano discloses a document classifying system which is a directory service and the classification information storage (col 1, lines 23-25; col 3, lines 42-50).

Based on that, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that Takano applies the directory structure to store the classification information. Also, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included the

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mirroring of the pre-existing directory to generate the document hierarchy by copying the pre-existing directory and included the directories of the hard disk, which was well-known in the computer environment, for storing classified documents.

Regarding claim 4, which is dependent on claim 1, Takano discloses:

- determining characteristic words of the document (col 8, lines 51-67)
- determining a frequency for each characteristic word (col 8, lines 51-67; col 9, lines 1-30)
- building a frequency table based on the frequency associated with each characteristic word (figure 6)

Independent claims 9 and 10 are for a machine-readable medium of the method of claims 1 and 4, and therefore are rejected under the same rationale.

Regarding independent claim 13, as disclosed in claims 1 and 2 above, Takano discloses:

- analyzing documents in a pre-existing directory to determine a document classification profile of the pre-existing document directory structure (the document classification item is equivalent to a document classification profile of a multimedia document, col 6, lines 21-40)
- generating a mirror directory structure based on the pre-existing document directory (mentioned in claim 2 above)

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- placing a document in the mirror directory structure based on the organization of the pre-existing document directory structure, results of textual analysis and graphical analysis of documents (as storing step in claim 1, col 3, lines 15-50; col 8, lines 43-55)

Takano does not disclose the steps of receiving a previously unclassified electronic document and analyzing textual and graphical properties of the electronic document using text data and image data of the entire electronic document.

Souza discloses analyzing textual and graphical properties of the electronic document using text data and image data of the entire electronic document (each file includes text and graphics, col 1, lines 6-13; 24-28; *analyze all* or at least a portion of a file, col 2, lines 1-4, col 3, lines 65-67 to col 4, lines 10-13).

Though Takano and Souza do not disclose receiving a previously unclassified electronic document, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that receiving such unclassified electronic documents is needed for analyzing and classifying documents.

Regarding claim 14, Takano discloses:

- generating a list of directories in the pre-existing document directory structure (col 1, lines 1, lines 24-50)
- examining files in the directories of the pre-existing document directory structure to determine content (col 2, lines 48-58)

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- examining the content of the files to determine *the document classification profile* of the directories in the pre-existing document directory structure (a list of bibliographic items and the classification information storage section stores a list of classification items, col 1, lines 34-50; col 2, lines 48-55)

Takano does not explicitly disclose the recursively descending the pre-existing document directory structure. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated the recursively descending the pre-existing document directory structure into Takano. Since it was well-known in the art that the network directory is organized in hierarchy, one would have known to browse to analyze the directories in descending order recursively.

Regarding claim 16, which is dependent on claim 13, the same argument is applied as in claims 1 and 2 above. The pre-existing directory is organized in hierarchy, which shows the relationships among directories, and the generating of a mirror directory is carried out by copying the pre-existing directory. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that the copying will copy all features of the pre-existing directory to a mirror directory such as set of directories and relationships among them.

Regarding claims 17 and 18, Takano discloses the list of classification items which is equivalent to the document classification profile (col 1, lines 34-40; col 2, lines 48-55).

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It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that whatever documents stored in either the primary directory or the secondary directory in the pre-existing directory will be stored in the equivalent directory of the mirror directory based on the *document classification profile* since the mirror directory is generated by copying from the pre-existing directory.

Claim 15, which is dependent on claim 13, includes the added limitations of claim 3, and is rejected under the same rationale.

Claims 19-23 are for the computer-readable medium of the method claims 13-14, 16-18, and are rejected under the same rationale.

Claims 24-28 are for an apparatus of claims 13-14, 16-18, and are rejected under the same rationale.

12. Claims 5 and 11 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Takano and de Souza as applied to claim 1 above, and further in view of Iijima (US Pat No. 5,845,304, 12/1/98, filed 4/12/96).

Regarding claim 5, which is dependent on claim 5, Takano and de Souza do not disclose the analyzing of graphical properties of an electronic document based on the point set and the density of points.

Iijima discloses:

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- determining a point set corresponding to the electronic document (col 4, lines 36-65)
- determining a density of points within the point set (col 1, lines 59-67; col 2, lines 10-18)

Iijima does not disclose the generating of a document profile based on the density of points. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined Iijima into Takano and de Souza. Since Iijima teaches the point set and the density of point in an electronic document, it motivates to include the generating of such profile for an electronic document based on the density of point set information.

Claim 11 is a machine-readable medium for the method claim 5, and therefore is rejected under the same rationale.

13. Claims 6 and 12 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Takano and de Souza as applied to claims 1 and 9 above, and further in view of Tim Ho et al. (*Decision Combination in Multiple Classifier Systems*, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 16, No. 1, January 1994).

Regarding claim 6, which is dependent on claim 1, Takano does not disclose that the generating of a classification of a document based on the textual and graphical properties comprises combining results from the textual and graphical analysis using a Borda Count.

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Ho discloses the Borda Count Method in which the Borda Count is a generalization of the majority vote and the Borda Count for a class is the sum of the number of classes ranked below it by each classifier (page 68, part B).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated the assigning of points to classes and the sum of the points of Ho into Takano and de Souza since Takano and de Souza discloses the directories to store classified documents in different classes and different orders.

Claim 12 is a machine-readable medium for the method claim 9, and is rejected under the same rationale.

14. Claims 29-32 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney (US Pat No. 5,889,886, 3/30/99, filed 11/28/95).

Regarding independent claim 29 and dependent claim 30, Mahoney discloses:

- a document scanning device (figure 1A)
- a document storage device coupled to the document scanning device, wherein the document storage device is organized as document directory structure having multiple directories (figure 1A, figure 2, figure 3)
- a processor coupled to the document scanning device and to the document storage device, wherein the processor analyzes *the content* of a document scanned by the

document scanning device to determine a directory in the document directory where to store the document in a corresponding mirror directory (figure 1B)

Mahoney does not disclose that the storage device has a mirror directory having multiple directories organized based on the document directory structure. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included that feature into Mahoney since the mirror directory is generated by merely copying the pre-existing directory.

In addition, Mahoney does not disclose storing of analyzed documents in the mirror directory corresponding to the pre-existing directory.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that by copying of the pre-existing directory, which includes classified documents, to generate a mirror directory, the documents will be stored in corresponding mirror directory, equivalent to the pre-existing directory.

Regarding claim 31, which is dependent on claim 29, Mahoney discloses that the processor analyzes files stored in the document directory structure to determine content and generates a *document classification profile* of the document directory structure based on the analysis (figure 1A, figure 2).

Regarding claim 32, Mahoney discloses that the document is analyzed based on image and textual content (col 1, lines 23-67; col 2, lines 1-6).

Response to Arguments

15. Applicant's arguments filed 12/27/00 have been fully considered but they are not persuasive.

Applicants argue that the system of Takano can not classify previously unclassified documents as the present invention does, even though the documents referred to in Takano as "unclassified document."

Examiner disagrees. Takano does teach classifying previously unclassified documents (col 3, line s 15-50; col 6, lines 21-40).

The classifying of an unclassified document in Takano, is based on its bibliographic item (col 6, lines 25-33) which constitutes a characteristic feature of the content of an unclassified document (col 6, lines 64-67). Since a document distributed in the network may include multimedia data such as images, text and sounds (col 8, lines 48-51), the bibliographic item can constitute characteristic feature of a document about images, text, and sounds.

The bibliographic item, as applicants argue, that constitutes a "characteristic feature of the content of the document i.e., a set of keywords and their frequency of appearance in the document" is merely a example of the case where a document is a text document (*a document including a text is exemplified herein*, col 8, lines 48-55)

In addition, de Souza discloses analyzing text and graphical properties of the entire document (each file can contain images and text, col 1, lines 24-28; checking each file to determine the file's real type property, col 2, lines 1-4; analyzing all the content of a document, col 3, lines 65-66)

Applicants also argue that Mahoney neither discloses analyze the content of a document nor determines a directory in a document directory structure for storing the document in accordance with the document content.

Examiner disagrees.

In Mahoney, based on analyzing content of documents, running text and non-running text of documents are classified, which is equivalent to the feature of a document classification profile (figure 2).

In addition, Mahoney discloses that image and non-image elements are stored in different areas in the memory (figure 1B, memory 44, image elements are stored in the image data array, non-image elements are stored in the rest of the memory).

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cooperman (US Pat No. 5,784,487, 7/21/98, filed 5/23/96) teaches a system for document layout analysis.

Zhilyaev (US Pat No. 6,137,911, 10/24/00, filed 6/16/97) teaches a test classification system and method.

Virdy (US Pat No. 6,148,289, 11/14/00, filed 4/18/97) teaches a system and method for geographically organizing and classifying business on the world wide web.

Cullen et al. (US Pat No. 5,335,290, 8/2/94, filed 4/6/92) teaches segmentation of text picture and lines of a document image.

Shih et al.; Adaptive Document Block Segmentation and Classification; Systems, Man, and Cybernetics; pages 797-802, vol 26, 10/1996.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cong-Lac Huynh whose telephone number is (703)-305-0432. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon, can be reached on (703) 308-5186. The fax number to this Art Unit is (703) 308-5403.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

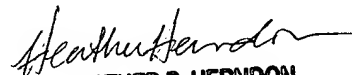
(703) 308-5403 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. Sixth Floor (Receptionist).

clh

3/9/01


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